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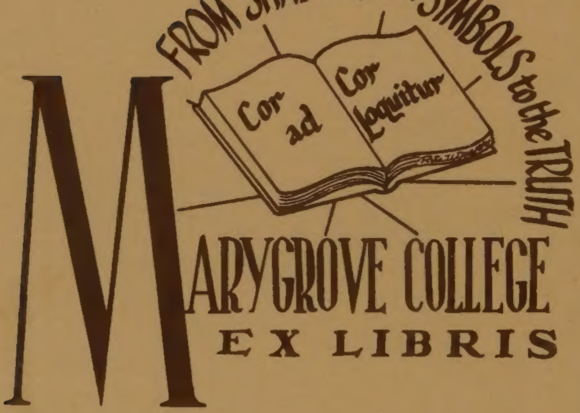

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DIRECTIONS
FOR
SCORE-READING
BY
HANS GÁL

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PREFACE

The score which was at one time the privilege of the professional musician only, has now become the universal property of all lovers of music and of those interested in that art. But although the masterpieces of our concert literature have become more popular in this way, yet the reading of scores implies theoretical and practical knowledge which the lover of music seldom attains unless he be a member of the profession.

For such amateurs the following manual has been written, not merely explaining the mysteries of score-reading but the peculiarities of the instruments as well. The student will find in this book all kinds of practical and useful hints and a summary of difficult questions connected with score-reading—which may prove useful even to those whose musical knowledge is more advanced.

Vienna, November 1923

Hans Gál

THE INSTRUMENTS OF THE ORCHESTRA

The intricate organism implied by the word "orchestra" is certainly the most complicated instrument ever created by any art. For this reason it is obvious that the medium used for the purpose of setting down the sounds of this great instrument—i.e. the score—seems very complicated and is apt to confuse the beginner. Just as in the case of a machine or a building every smallest detail must be explained distinctly, to be interpreted in one way only—so every one of the movements of the hundred arms of the orchestra must be as clearly described as possible. Sufficient scope is still left for the conductor and the performers concerning the tempo, the dynamics and all those inexpressible minute details which form the essential ingredients of a truly inspired performance and convey the inherent meaning of the composition to the hearer. The problem of presenting anything so complicated as music written for an orchestra in a concise form is a difficult one, and it is made more so by our musical notation, for it is rather an unpractical system slowly evolved and one which cannot be altered. This will be referred to later on. The perfect reading of the score by which the student gets an exact idea of the sound of the work under consideration, is obviously one of the most arduous tasks set to a practical musician; and modern works demand so much of "inward hearing" and imagination that even an experienced conductor does not always give the interpretation desired by the composer.

Apart from the difficulty of such special problems the mastering of which requires a special training in polyphonic and harmonic perception, the task of reading a score presents two difficulties: the taking in at a glance of the whole page, and the reading of notations (1) which are sometimes very inconvenient, to say the least.

First of all let us consider how the instruments are arranged and how 20 or 30 staves forming 3 or 4 groups, are drawn up on one page of an orchestral score.

Two principles govern the formation of these groups:

a) All the instruments of similar kind are collected together.

b) Within each section they are again grouped according to the pitch.

Thus there are three groups:

1) Stringed instruments:
   a) Stringed instruments proper (violins, violas, violoncelli, double basses),
   b) Plucking instruments (harps, mandolines, guitars, etc.).
2) Brass or percussion instruments (horns, trumpets, trombones, tubas, kettle-drums, cymbals, big drums, gongs, triangles, xylophones, bells [Glockenspiel], castanets, tambourines, etc.).
3) Woodwind instruments (flutes, oboes, clarinets, bassoons, etc.).

STRINGED INSTRUMENTS

The principal instruments of the old orchestra, and the nucleus and most important group of the new are the strings, which form a complete chorus; (that is to say, every "voice" in the score is represented by several instruments) while all the others are solo instruments (meaning that every instrument is represented by one player only). (1)

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(1) "Notation" means the method of expressing, by means of written or printed signs, musical sounds and, in short, all other things connected with the technical details of the writing of music—the clefs, etc.

The strings form a string quintet and, as a rule, are written at the bottom of the page; they are arranged as follows:

Ist Violins	Wagner uses 16 of each
IInd ,,	
Violas	Wagner uses 12 of each
Violoncelli	Wagner uses 8 of each
Double basses	

The proportionate number of the Wagnerian strings has, generally speaking, been adopted by present-day composers as well; frequently, however, they prefer to use a larger number of first violins. The reader of scores will have to devote his attention principally to the string quintet, as it is nearly always well in evidence, for even when not actually leading, it is taking part in fundamental work and certainly is the most important group in the orchestra.

In old scores the parts for cellos and double basses are generally written on one stave, as they are played in unison (note remark below). But the double basses sound one octave lower than written. Consequently when cellos and double basses are written "unison" they really play in the octave intervals which are a characteristic of the old orchestra (2).

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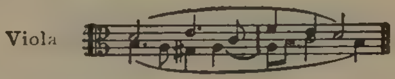
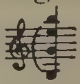
(1) If there is a passage where two or three instruments of the same kind (say 2 or 3 oboes) are to perform in unison, this is expressed by "a 2" resp. "a 3".

(2) In works of the 17th and 18th century, especially in Bach's and Handel's, one frequently finds the word „Continuo" affixed to the bass part. This means

A dividing of the strings within each group occurs even in old works—in modern ones it is still more frequent. The word "divisi" means that the two players sitting at one desk each take one of the two parts, one playing the upper and the other the lower notes. With violins there frequently occur divisions into more than two parts. If the word "divisi" does not occur in the case of intervals or chords, these are performed as "double stopping" by all the players of the respective group. Frequently instead of the word "divisi" one meets a two-part notation, in which the stems of the notes are turned upward and downward, respectively, e. g.

Example 1 SCHUBERT, Symphony C-major, 1st movement, bar 17 and foll.



In newer scores (for instance Mahler's) double, treble, or quadruple stopping is expressed by a bracket placed before the chord, thus 

Even the above insignificant details prove how manifold are the methods of notation—a difficulty which is due to

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that an organ or piano is to play ad libitum from a figured or "thorough" bass in addition to the usual celli and double basses. It is a peculiarity of this kind of music that the instrumental part of the work is only sketched, so to say. The essential parts only are actually noted, minor or accessory ones are left to the judgement of the performer. Playing continuo or thoroughbass (meaning the ability to improvise a free accompaniment from the notes of the figured bass) formed part of the technical equipment of a musician, and this method has been continued up till our time in the church music and oratorios of Haydn, Mozart, Beethoven, Schubert, Mendelssohn. Even in Brahms' "German Requiem" there is an organ part ad libitum, the notes not being written in the score but left to the player. (Brahms himself later wrote an organ part for this work which is generally used when it is performed.)

the fact that such questions are governed by certain generally accepted conventions, not, however, by definite rules for a "correct musical spelling".

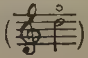
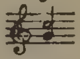
When a string part is marked "solo", the passage is to be executed by one player and not by the whole group. Such solo passages are generally noted in a special stave above the leading voice. Such a solo passage played by a stringed instrument within its group always produces a particularly exquisite tonal effect dependant on the tone quality of the respective solo player. Therefore this device is preferably used in delicately orchestrated passages which give ample scope for subtle shadings. In such a case the solo instrument distinguishes itself from its neighbours by the quality of its tone and thus becomes the leading part.

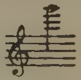
In reading scores the chief thing is to be able to distinguish between leading and secondary parts; the former contribute to the melodic contours while the latter form the harmonic and rhythmic background. Of course the parts which the different instruments take in the orchestral ensemble are continually changing. Now this instrument is prominent, now that; now one group has the leading part, to be taken up afterwards by another. Closest attention is therefore necessary to enable the reader to find his way through the score.

Space forbids extensive comment on the technical treatment of the stringed instrument. Any manual of violin playing will supply detailed information on this subject. I only wish to explain some of the Italian terms which are of frequent occurence.

pizz.=pizzicato (the strings are plucked with the fingers)
arco = with the bow (the ordinary way again)

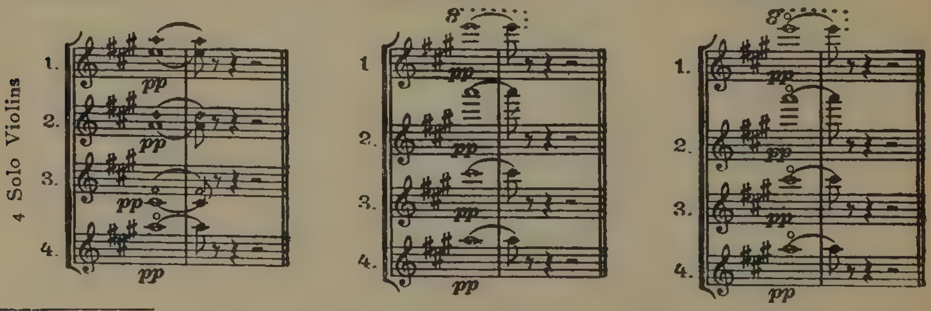
spiccato = the strings are lightly touched with the bow, producing a quick and light staccato
sul ponticello = on the bridge (a manner of playing which is sometimes used for tremolo effects, producing a peculiarly rustling sound)
col legno = with the wood (the back of the bow is used instead of the horse-hair, effecting a crackling noisy sound)
con sordino = with the mute.

The notation ∘ above a note () signifies that this special note is to be played "harmonic" (1). The so-called double harmonic is sometimes, even in our time, noted in a way which is most awkward and confusing for the reader: 

The square note placed above the ordinary one is merely a technical help, pointing out to the player how the sound is to be produced. The actual sound is 2 octaves above the lower note, viz. 

An example will make this clear:

Example 2 WAGNER, "Lohengrin", Prelude bar 2


Notation: | Actual sound: | A better method of notation:

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(1) "Harmonics" are sounds which are produced by merely touching the string in a certain place with the result that a very clear, ethereal, glass-like tone is obtained.

The alto and tenor clef used with stringed instruments (viola and violoncello) will be referred to later on (page 23).

BRASS AND PERCUSSION INSTRUMENTS

Now we have to deal with the second group of the orchestra: the brass and percussion instruments. In the older scores (generally even with those of Beethoven) this group as a rule comprises a pair of horns, trumpets and kettle-drums which are not arranged according to the pitch, thus deviating from the usual custom; the horns, although they play a lower part, are noted above the trumpets. This is because they are usually employed in connexion with the woodwind, ever since valves were introduced. To group them with the woodwind therefore facilitates reading and proves more convenient than to join them to the trumpets (which are generally employed in a different group) and thus separate them from the woodwind.

Horns and trumpets belong to the so-called transposing instruments. They are written differently according to the prescribed tuning (horns in F, E flat and A, etc.). These transpositions which generally cause great difficulties to the reader are to be referred to more explicitly later on (page 24 and foll., 30 and foll.).

In French and Italian works (with Meyerbeer, Bizet, Berlioz, Verdi) a Cornet à pistons is often required instead of the trumpets, frequently also a pair of trumpets and cornets. The cornet has neither the wealth of sound nor the power and noble tone of a trumpet but is much more agile and fluent, especially in the higher registers. As a popular instrument it is being much used, yet it has never become quite at home in the symphony orchestra. Our trumpet players prefer to play the cornet part on the ordinary trumpet. The cornet and the trumpet are written for, as well as read, in all tunings (page 30 and foll.).

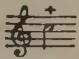
If trombones are used their part is written below the brass ensemble, directly underneath the trumpets with whom they form the group of the "heavy brass". As a rule there are three of them. In older scores the three trombone-parts (alto, tenor and bass) are frequently written on three separate staves in the alto, tenor and bass clef; otherwise the alto and tenor trombone are joined on one stave (with alto or tenor clef); the bass trombone is either written for separately or is joined to the bass tuba if the latter joins forces with the three trombones.

The ophicleide—a deep brass instrument occasionally employed in older scores (Mendelssohn, Berlioz, Meyerbeer)—is no longer used and in present-day performances is replaced by the bass tuba. Nowadays the tenor and bass clefs exclusively are used for trombones, as the alto trombone has been discarded altogether on account of its deficiencies in sound and its bad technical qualities.

In Wagner's Ring Tetralogy (later on also with Bruckner and others) the brass ensemble has been reinforced by a new group, the tubas (called "Wagner tubas", and not to be confounded with the ordinary bass tubas). Being transposing instruments (generally tenor tubas in B flat, bass tubas in F) they must be read like horns of the same tuning.

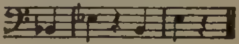
The tubas whose solemn yet gloomy and heavy sound is used by Wagner to picture Wallhalla and the Nibelungen world, occur but rarely in the symphony orchestra.

The pompous, majestic, even blaring tone quality which is common to all instruments of the brass group yet allows of very individual and varying shadings with each single instrument. The horn is soft and expressive, the trumpet harsh and brilliant. The sound of the trombone is solemn and imposing, while the bass tuba gives the impression of being cumbersome and immobile, and thus gives occasion for characteristic effects when employed as a solo instrument (Fafner's scene in "Siegfried").

When "con sordino" or "muted" is prescribed for brass instruments (horn, trumpets, or trombones), a cone is inserted into the bell producing a soft, delicate, mystic sound in general, which becomes piercing and rasping in passages played "forte". The same result is achieved with horns by the so-called "stopping", i.e. when the player inserts his hand in the bell. In the score such sounds are marked "stopped", and according to the method of Richard Wagner a vertical cross is placed above the note 

Nowadays one has to read the brass group carefully as these instruments play a very conspicuous part in modern works. The horn for instance, has become one of the most important solo instruments in our modern orchestra, owing to its capacity for manifold expressions. Trumpets and trombones, on the other hand, produce such a wealth of sound, that they invariably take the lead whenever they occur. Consequently they must be read as, and considered, a predominant group.

The kettle-drums (Italian: timpani) are the most important of the percussion instruments. In older works only one pair is used as a rule, and the tuning is not changed within the whole movement; thus only two different sounds are at the disposal of the player (for instance timpani in F, B flat). Later works demanded a more and more frequent change of tuning ("muta in....") and finally two pairs of kettle-drums were employed, while Berlioz called for even more. In our time it is no longer customary to prescribe the change of tuning; the player is at liberty to chose the number of kettle-drums to be used and their tuning according to the requirements of the score.

It must be noted that the drum part takes no account of accidentals in cases where the tuning is mentioned at the beginning. (♯ ♭). Frequently the accidentals are mentioned the first time they occur and are omitted ever afterwards. For instance: kettle-drums in B flat, E flat 

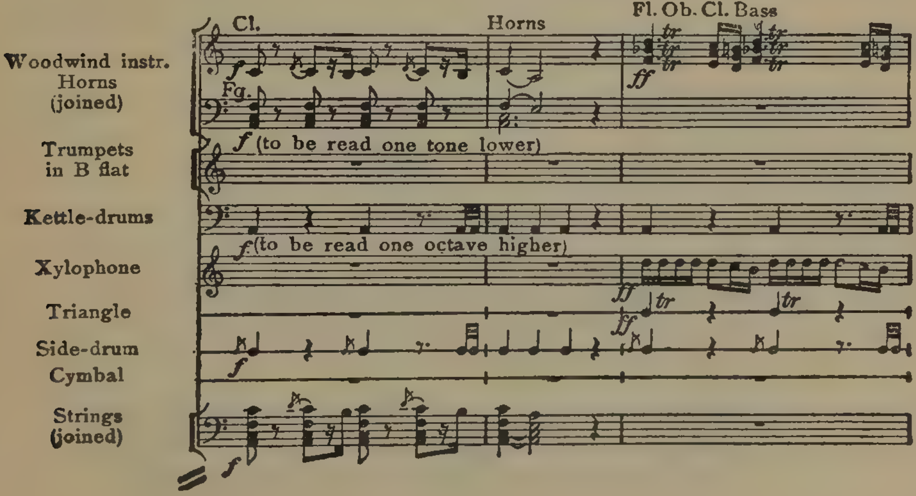
The muffled sound of the kettle-drums, or rather its actual pitch, is much more noticeable in piano than in forte passages. They sound much softer and fuller when a spongy drum-stick is applied, and harder and more dry when a wooden one is used. The sticks normally employed (in Germany) have leather heads, which produce a sound more or less between the two. In England drumsticks are generally headed with felt.

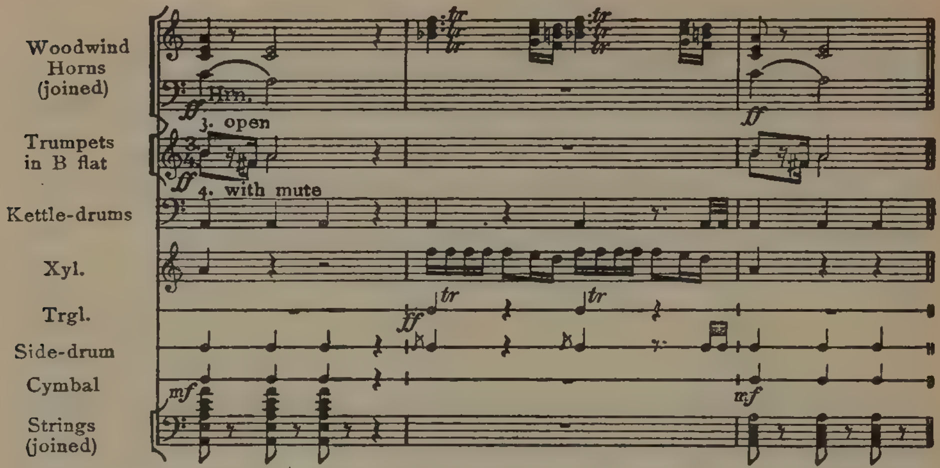
Amongst the drums are grouped those instruments which have no definite sound, but are used merely for tonal and rhythmic effects (triangle, cymbal, big drum, tambourine, tenor-drum, gong, castanets, etc.). In order to save space, these instruments have no special stave, only a line is drawn, as they play no actual note. With every kind of percussion instrument the sign of "tr" denotes a rapid shake, a trill, which cannot be counted rhythmically.

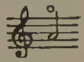
The triangle produces a clear sound similar to that of a small bell, the cymbal a shrill metal sound dominating the whole orchestra. The big drum gives a dull sound like the shot of a cannon, the small (side) drum is very dry, noisy and without resonance. The gong has ghostly resounding, deep notes, while the tambourine rattles and clashes and is of a bright and merry character.

The bells (Glockenspiel) and the xylophone are grouped with the percussion instruments. With the former, bells are made to sound by means of a pianoforte mechanism, and the latter consists of wooden blocks which are tuned in different notes. Both instruments sound one octave higher than written. Deep bells (frequently employed by Mahler and others) are replaced by steel pipes of different length, consequently producing notes of differing pitch. They are made to vibrate by means of a hammer. Here follows an example of the notation of percussion instruments:

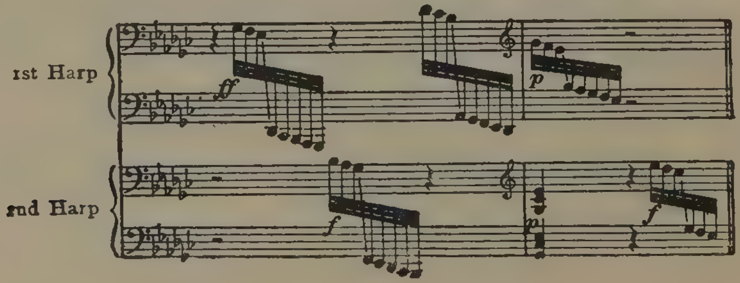
Example 3 MAHLER, VI. Symphony, 1st movement, number 17





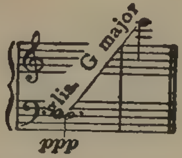
Immediately above the stringed instruments is usually placed the harp which does not belong to any one of the three groups. It is written for on 2 staves like a piano. As in the case of the stringed instruments, with the harp also there occur harmonic sounds (see page 10), which are noted in the same way  and heard one octave higher. The word "glissando" signifies a quick sweeping over the entire strings—as on a piano—producing an exuberant, rushing sound which is strikingly clear and glittering in the higher registers. In such cases one does not write the entire scale which is to be played, but just the first and last notes—the notes between these are just hinted at by a line—for instance:

Example 4 RICH. STRAUSS, "A Hero's Life", number $\boxed{32}$, bar 4



or it is noted in a still simpler fashion by just mentioning the key.

Example 5 MAHLER, "Song of the earth", I. number 11, bar 7



The technical construction of the harp allows of a glissando not only with scales but also with certain chords.

Sometimes the harp is joined by other plucking instruments, the mandoline and the guitar. They are written for within a small register only, because their possibilities both of sound and technique are very limited. Their music is written in the treble-clef (the mandoline sounding as written, the guitar one octave lower). In the operatic orchestra ("Don Juan", "Mastersingers") these instruments are replaced by the harp on account of the latter's volume of sound. By placing a small strip of paper between the strings the rasping, nasal sound of a guitar is imitated.

In the modern orchestra the harp is frequently augmented by the celesta (steel piano) which produces clear, silvery sounds. In conjunction with the harp it gives a particularly good mixture of tones. Music for the celesta is written as for the piano, but sounds one octave higher.

Of late the piano also is used as an orchestral instrument and is scored in the same group with the last-named instruments to which it is comparatively closely related as regards its tonal colour.

Even the harmonium has frequently been used as an accessory instrument in works scored for chamber orchestra, as for instance in Richard Strauss' "Ariadne".

The organ is but seldom used in the orchestra, as its sound is too powerful and predominant; it would be impossible to assign to it any but a leading part. However in Mahler's 8th Symphony and in Strauss' "Zarathustra" and "Alpine Symphony" it has been employed. The organ part is generally written for in 3 staves, the two upper ones (written for as if for pianoforte) being for the manual part, while the lowest stave is assigned to the pedal. (1)

WOODWIND INSTRUMENTS

The woodwind section consists of 4 groups: flutes, oboes, clarinets and bassoons.

The flute, which sounds uniformly clear and is almost devoid of expression in its high register, may be termed the coloratura singer among the orchestral instruments. Its sound is very conspicuous and most characteristic, in fact typical of this instrument. In the lower and deep register, however, the flute produces a very strange and peculiar tone which sounds rather veiled and dull.

These tonal shadings of the various registers (peculiar to every wind instrument) require much study: in order to become intimately acquainted with them, one must listen very attentively. Every attempt to describe them in words is doomed to failure. One can only give hints.

Besides the ordinary flute there frequently occurs the little flute or piccolo (flauto piccolo); it sounds one octave higher than written and is the highest and most piercing voice in the orchestra. A newly constructed Alto flute (employed in Pfitzner's "Palestrina", by Rimsky-Korsakoff, Ravel etc.) is not yet in general use. In sound it resembles the low tones of the flute. When played in ensemble the flute takes a secondary place on account of its mellowness and unobtrusiveness. Oboes and clarinets are much more expressive in comparison.

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(1) The organ has several manuals (key boards) arranged one above the other like terraces. By different registrations or stops they offer the most varied possibilities of sound. There are also pedals (a system of keys compassing $2^1/_2$ bass octaves) which are played with the feet.

Mozart, in "Il Seraglio", employs the flageolet—a high variety of the old flute à bec which corresponds to the piccolo, and which is now generally replaced by the piccolo. The flageolet is a transposing instrument (see page 27 and foll.) written for in G and read a twelfth higher.

The oboe has a rather conspicuous tone, notwithstanding its tender and poetic quality. This is particularly noticeable in soft passages when compared with the other wind instruments. In the lower register it is decidedly hard and rasping, in the high register piercing and thin, inclined almost to the comic. As a leading instrument it is the most important of the woodwind ensemble. Melodies of a delicate, pastoral and expressive character are entrusted to it for preference (see example 9, page 29).

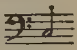
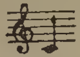
Besides the common oboe used exclusively in the classical orchestra, there also exists an Alto oboe (generally called English horn); it is noted a fifth lower and is a transposing instrument in F (see page 28). It occurs with Bach and was called oboe da caccia; afterwards it was forgotten, but Berlioz and Wagner reinstated it in its place within the orchestra.

The English horn sounds fuller and darker than the oboe, but a little indistinct and veiled. Its character is most clearly disclosed in the "sad melody" played by the shepherd in the last act of "Tristan and Isolda", when the player is posted on the stage itself.

The old oboe d'amore, which Richard Strauss rediscovered for the modern orchestra, is an instrument halfway between the common oboe and the English horn. It is written for a third lower than the ordinary oboe, and read like an A clarinet. (Its naive, child-like sound is very characteristically employed in Richard Strauss' "Symphonia domestica").

Owing to their agility and their great capacity for varied tone colours, the modern orchestra allots to the clarinets the most prominent place among the woodwind. They are transposing instruments throughout (see page 27 and foll.).

Whenever the clarinet plays the leading melody, it is so impressive, that the attentive listener cannot help noticing it on account of the softness and warmth of its sound. This very softness, on the other hand, makes the clarinet indispensable as an accessory instrument. It also adapts itself splendidly to figuration work generally. The tone of its deep register is hollow, sometimes quite weird and phantastically gloomy. (The Wild Hunter Samiel in Weber's "Freischütz", Kundry, Ortrud.)

Besides the usual clarinets in A and B flat there exists a C clarinet which occurred occasionally in older scores and is nowadays employed by Richard Strauss. It is used but seldom as its sound is hard and piercing, and at performances the B flat clarinet is generally substituted for it. In modern orchestras one finds high clarinets in D and E flat; the latter especially is very shrill and vulgar in tone and is therefore frequently used for purposes of caricature. There is also an alto clarinet in F, called the basset horn. Mozart used it frequently, and in our times Richard Strauss and others write for it. Finally there is the bass clarinet in B flat and A which is now commonly used. It is generally noted in the treble clef like the corresponding B flat and A clarinet. It sounds one octave lower than written. In the bass clef the bass clarinet is noted in the ordinary way, so that the following notes  and  represent one and the same sound.

The basset horn has a dark, impressive sound. One appreciates its characteristics best in the chorus of the priests in the "Magic Flute" and in Mozart's "Requiem". The bass clarinet gives a morbid impression when used as solo instrument, but is considerably more versatile in character. Its sounds are as hollow as those of the clarinet in the lower register, only much softer. (As an example see the expressive bass clarinet passages in King Marke's scene in the second act of "Tristan".) The bass clarinet is much used as bass of the woodwind group (especially when joined to the bassoons and the other clarinets) as its sounds mix well and form a good foundation.

The bassoon may be considered as the comic bass singer of the ensemble. Its flat, nasal sound produces clownish effects, especially in the high and top registers. One need only think of the wretched helplessness of battered Beckmesser ("Mastersingers", 3rd act) or embarrassed Mime ("Siegfried" 1st act); anybody having once listened attentively to these passages, will understand the characteristics of the bassoon. The bassoon, however, may also be used as solo instrument when its delicate sound occasionally creates a peculiarly touching and impressive effect.

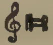
The bassoon does not transpose; it is written for in the bass and tenor clef, the same as the contrabassoon which (like the double bass) sounds one octave lower than written. Sometimes the latter is written for without mentioning the transposition to a lower octave. As this is apt to lead to misunderstandings, it ought to be avoided. The contrabassoon is seldom used as solo instrument; as a rule it helps to strengthen the basses which thereby gain much in wealth of sound.

In modern scores, with the wood winds, especially with flutes, oboes and clarinets, one sometimes finds the direction "fluttering tongue". This implies a special way of repeating the sound rapidly, comparable to the tremolo of the strings. The same meaning must be applied to the direction "double tongueing" (Mahler "Song of the Earth", Strauss "Domestica").

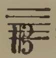
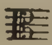
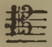
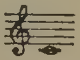
In the Latin countries and in America the saxophones have become immensely popular. These are brass instruments with clarinet mouthpieces and a mechanism of valves. They belong to the woodwind group and are constructed in 4 different sizes and tunings: soprano, alto, baritone and bass. They are transposing instruments written for in the treble clef; the baritone saxophone must be read one octave lower than written and the bass saxophone 2 octaves lower.

CLEFS AND TRANSPOSITIONS

If vocal parts occur in the score (operas, choral works, oratorios) they are written either above the first violins or else among the strings, between violas and violoncelli.

The latter is an old method practiced also by Wagner, and there is much to recommend it; in this way the voices are supported by the basses which supplement the harmony. Today the treble clef is used exclusively for soprano and alto vocal parts; but the old soprano and alto clefs are still found in most of the scores of the last century, including those of Brahms. Richard Wagner still wrote the tenor clef for the tenor (Siegfried, Tristan). Rich. Strauss did the same in his vocal scores ("Deutsche Motette"). Nowadays it is replaced by the treble clef which in such cases is to be read one octave lower. For this special treble-clef the Italians use the notation  which has a decided advantage since it distinguishes the normal treble clef from the one in scores for several vocal parts.

We shall now have to deal with the old clefs which must be explained as they are not known to those musicians who are only acquainted with the violin and the piano.

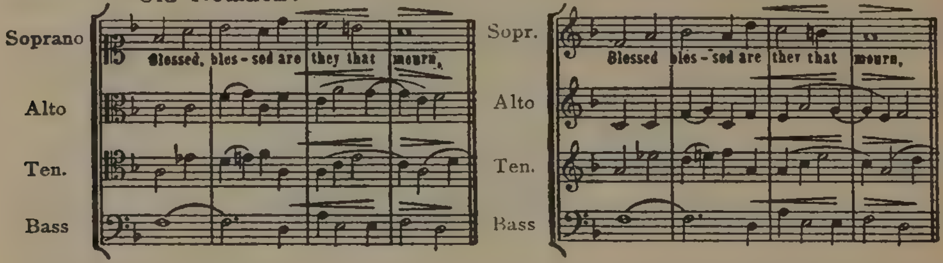
Soprano clef , Alto clef  and tenor clef  are C clefs, i.e. the line of the stave denoted by the clef is middle C ; with the soprano clef this is the first line, with the alto clef the third, and with the tenor clef the fourth line. Bearing this in mind, it will not be difficult to retrace the other notes of the respective clef. At first the reading will cause so many difficulties as to make it advisable to transpose in every case, that is to say, the notes of the soprano clef must be read a third lower than they would be in the treble clef, in the case of the alto clef a seventh lower, and a ninth lower with the tenor clef. The following may serve as an example for the old and the present notation of a vocal score.

Example 6

BRAHMS "A German Requiem", I. bar 19 ff

Old Notation:

Present Notation (tenor sounds one octave lower):


Soprano
Alto
Ten.
Bass
Blessed, bles - sed are they that mourn,
Sopr.
Alto
Ten.
Bass
Blessed bles - sed are they that mourn,

Instrumentally, the alto clef is also used for the viola, the tenor and bass clefs for bassoon, trombone and violoncello. With the latter the treble clef is also used besides the bass clef but with different interpretations: a) to be read normally and sounding as noted, b) in the same way as with the tenor voice, i.e. to be read one octave lower than noted. The latter interpretation was much used up to the end of the last century but is seldom employed nowadays. An old rule referring to the application of the treble clef to the violoncello says that "the treble clef is to be read one octave lower than noted when following upon a passage written in the bass clef; it must be read in the normal way if a tenor clef precedes it". Unfortunately the contrary frequently happens. In such a case common-sense must decide the question. Today, as stated above, one prefers to apply the treble clef to the violoncello in the normal way.

For examples for the use of the different clefs with the violoncello see page 26.

The reading of the clefs does not prove to be as difficult as that of the transposing instruments. To this class belong: Oboe d'amore, English horn, all the clarinets, horns, trumpets and tubas. In exceptional cases, i.e. when another than the normal tuning is required (Mahler's 4th symphony, 2nd movement), the violin also is written as a transposing instrument. (In the above mentioned case the violin is to be read as a transposing instrument in D).

The custom of transpositions dates from the time when the respective instruments were rather deficient in technique. The chromatic intervals of the diatonic scale were either not clear, very difficult or even impossible to play. The technique of the horns and trumpets was particularly insufficient; these so-called "natural" instruments (1) commanded a scale which was but imperfect and diatonically incomplete. To attain the differences of tuning it was therefore necessary to construct tubes of varying length; with horns and trumpets tubes of differing length ("valves") were inserted. The clarinet in C has the C major scale as tonic, the clarinet in A has A major, B flat has B flat major. The E flat horn, for instance, had the but limited natural scale of E flat, the E trumpet the scale of E. The clarinets met with technical difficulties when attempting to modulate far beyond this chief key; for the horns this proved absolutely impossible. In prescribing the tuning, therefore, the chief key of the composition had to be considered; with horns and trumpets this generally was the tonic key—with the clarinets which had but the three tunings of C, B flat and A, it was the scale closest to the dominant. Frequently the sound of the instrument had to be taken into consideration as the clarinets

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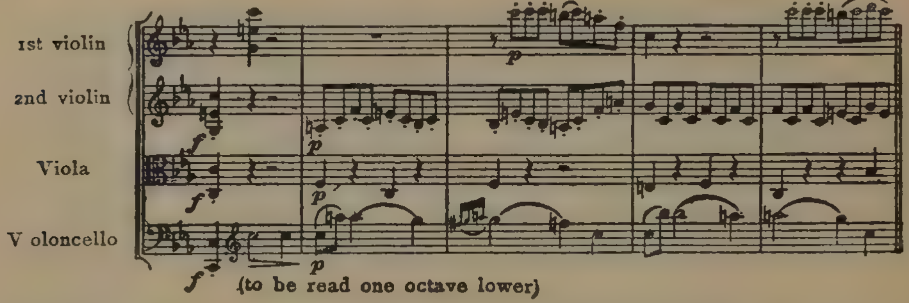
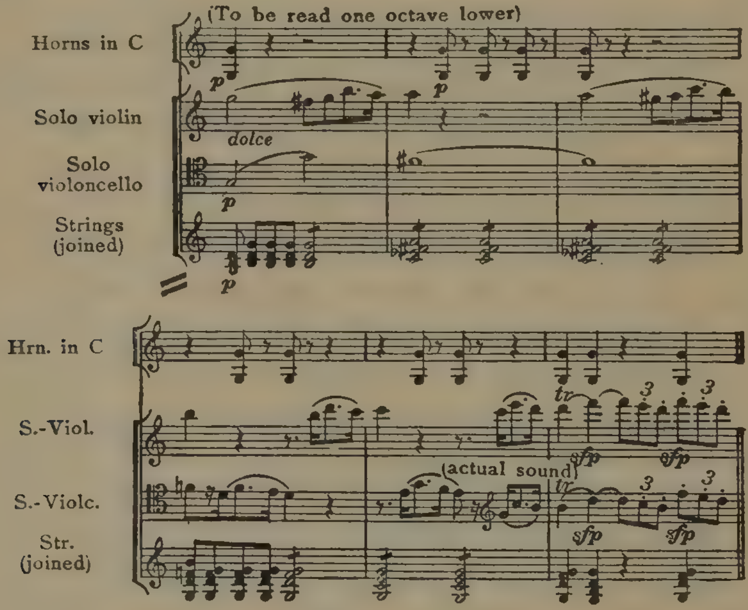
(1) "Natural" instruments are wind instruments without valves or keys of any kind; by varying pressure of the lips the player can produce a limited number of sounds (the so called harmonics).

Example 7

BEETHOVEN, Stringquartet C-minor, op. 18, No. 4, 1st movement, bar 111 ff



Example 8 BEETHOVEN, Triple Concerto, 1st movement, bar 85 ff

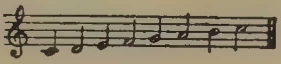


differ very much in colour in the various tunings. The lower the key the softer they sound, and conversely their sharpness of sound increases in the higher register (see page 20). For this reason clarinets in D and E flat, so piercing in sound and which had long been known and employed in military bands, were not suited for use with the orchestra of the old days where the number of musicians was limited; they are, however, employed to good advantage in the huge orchestras of the present day.

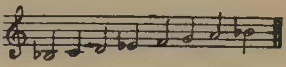
The difficulties of playing in any but the chief key were removed as regards the clarinets by an improvement of the keys; with the horns and trumpets the difficulty was relieved by the introduction of valves. Nevertheless custom treats both still as transposing instruments.

We shall now consider the method of writing for the clarinets.

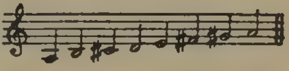
The C major scale is played unchanged (in C major) by the C clarinet.



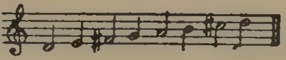
The same C major scale is played in B flat major by the B flat clarinet.



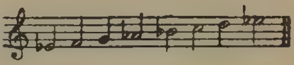
The same C major scale is played in A major by the A clarinet.



The same C major scale is played in D major by the D clarinet.



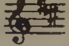
The same C major scale is played in E flat major by the E flat clarinet.



With the C clarinet only therefore the actual sound coincides with the written notes, which need not be transposed in playing.

The B flat clarinet must be read a whole-tone lower, and the A clarinet a minor third lower than written.

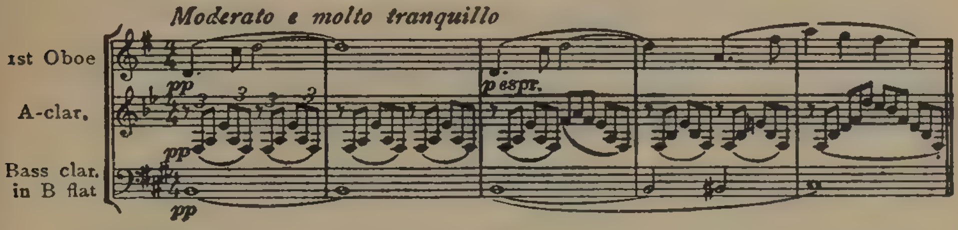
The D clarinet is to be read a whole-tone higher and the E flat clarinet a minor third higher than written.

Naturally the application of the accidentals to the transposing clarinets differs from that of normal instruments and is conditional upon the relationship of their key to that in which the composition is written. If the key be B flat, the B flat clarinet will not have any accidentals as it is tuned to this scale. If the key is C major, the B flat clarinet must have the accidentals  as otherwise F and C would sound like E flat and B flat; the sharps placed before F and C produce the required sounds of E and B. In the same way the A clarinet is written for in the F major scale for a piece composed in D major, etc.

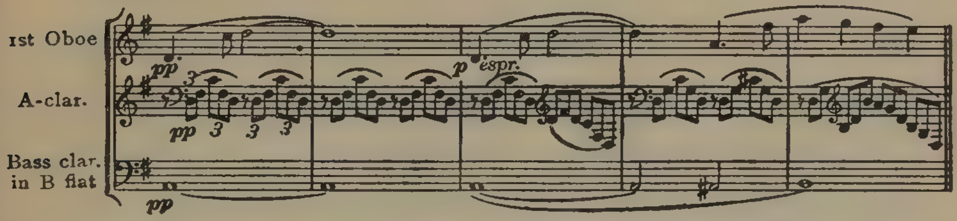
When reading, the above mentioned rules of transposition concerning the corresponding interval will prove to be of assistance. This interval always corresponds to the relationship of the C to the key in which the instrument is tuned. Everything mentioned above concerning the clarinet applies to the bass clarinet as well. Remember that the bass clarinet is read one octave lower when written for in the treble clef. The basset horn (alto clarinet) is written for in F and is to be read one fifth lower and so is the English horn (alto oboe). The oboe d'amore however is to be written for as an A clarinet.

Horns and trumpets are to be read on the same principle as the clarinets. The key signatures for the different tunings are not, as a matter of fact, of much practical use. The prescribed tuning does not concern the horn player, who uses the one which he thinks most convenient, as a rule the one in F (if there are high positions also B flat and A) and who attends to the transposing himself if the prescribed tuning is a different one. Since the introduction of valves, such regard for the technique has become superfluous, as the horn now has a complete chromatic scale. The

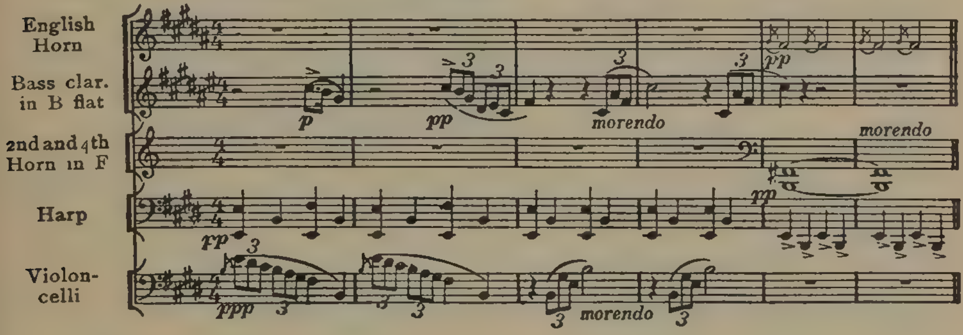
Example 9 RICH. STRAUSS, "Sinfonia domestica", number 49



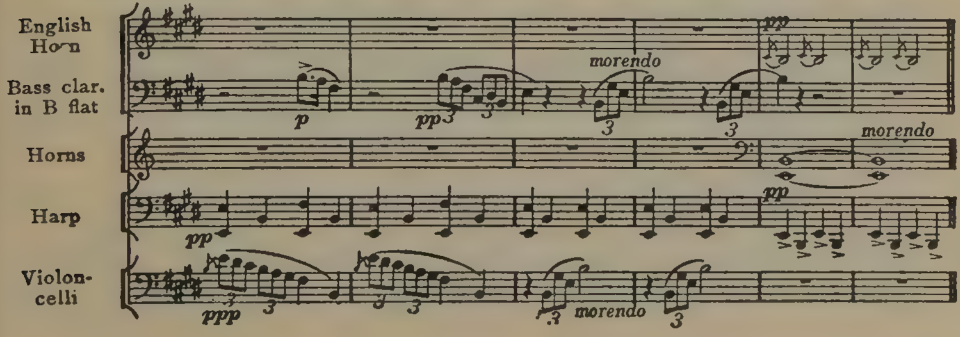
Actual sound:



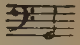
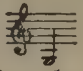
Example 10 MAHLER, 4th symphony, 4th movement, number 15, bar 10 ff



Actual sound:



same remarks apply to the trumpet. With horns or trumpets key signatures are never noted but the marks ♯ ♭ ♮ are placed before the respective note where it is required. In some exceptional cases (occasionally with Bruckner) where key signatures are used, they are treated in the same way as with the clarinets. In former days all kinds of imaginable tunings were prescribed—even Wagner did so. To-day horns are written for in F, trumpets in C or in F or B flat.

The horns are transposed to a lower pitch if written for in the treble clef: E flat horn to be read lower by a major sixth, D horn by a minor seventh. B flat horns are noted in two different tunings; as B flat alto (high B flat) (1) it must be read a whole-tone lower, as B flat basso (low B) it is to be read a ninth lower than written. If the horns are written for in the bass clef (which is done seldom and only in passages the low pitch of which makes the use of the treble clef inconvenient), they must be transposed an octave higher, i.e.: in the bass clef the same tone will be noted an octave lower than in the treble clef. Thus the notes  and  are identical on the horn. The C horn if written for in the treble clef is to be read one octave lower—it remains unchanged if noted in the bass clef.

The trumpets as a rule are to be transposed higher, excepting the ones in B flat and A which are to be read like the clarinets: F trumpet one fourth, D trumpet a whole-tone, E flat trumpet a minor third higher etc. C trumpet sounds as noted, like the C clarinet (2).

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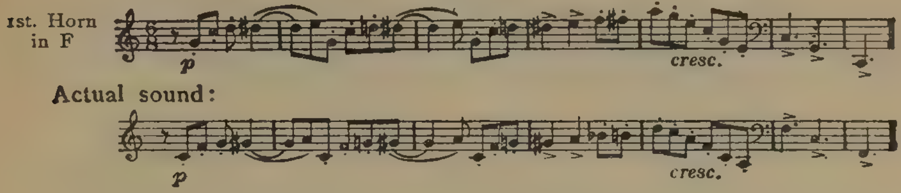
(1) If the words "alto" or "basso" are missing in the score, the lower tuning (B flat basso) is to be read as a rule, as it is of more frequent occurrence.

(2) The custom of crossing the parts when 2 pairs of horns are employed (the 3rd horn voice having a higher position than the 2nd one, see example 13, 14)

Example 11

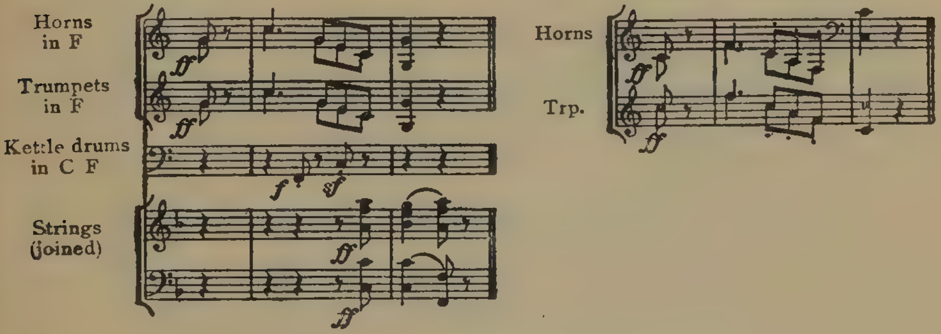
RICH. STRAUSS, Op. 28 "Till Eulenspiegel", bar 6 ff



Example 12

BEETHOVEN, 8th Symphony, 3rd movement, bar 37 ff

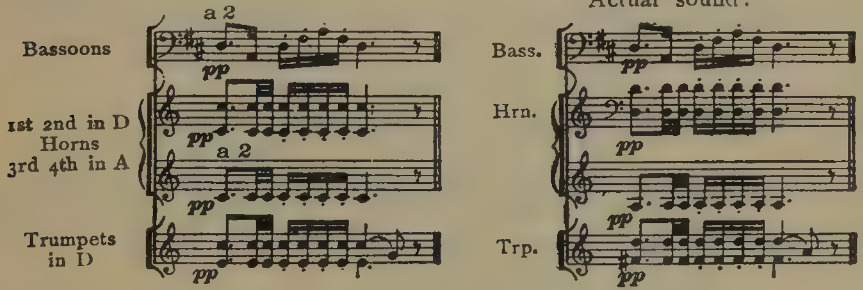
Actual sound of the



Example 13

WEBER, Overture to "Oberon", bar 10

Actual sound:



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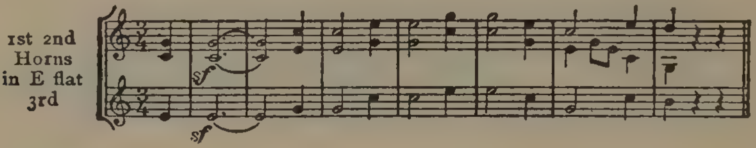
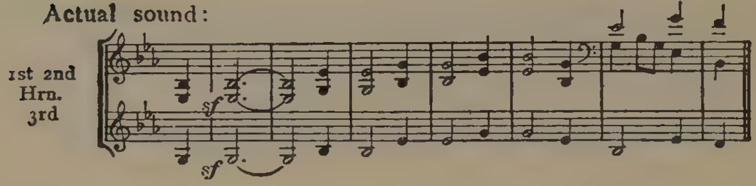
is due to the fact, that the 1st and 3rd hornist (primarius) are technically speaking better suited for the high position, while the 2nd and 4th horn players (secundarius) prefer the lower one.

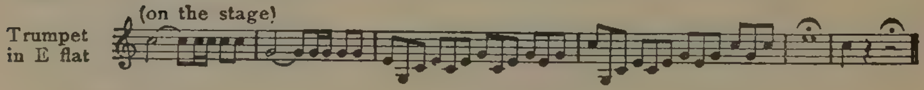
Example 14 BEETHOVEN, 3rd symphony, 3rd movement, bar 167 ff



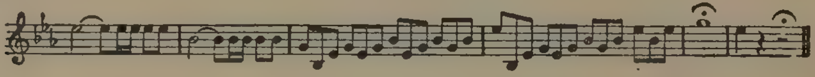
Actual sound:



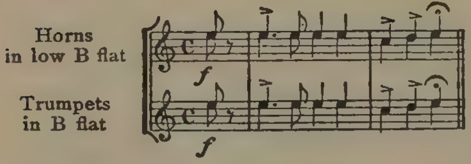
Example 15 BEETHOVEN, 2nd Overture to "Leonore", bar 392 ff.



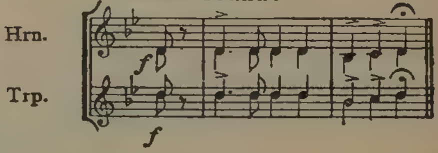
Actual sound:



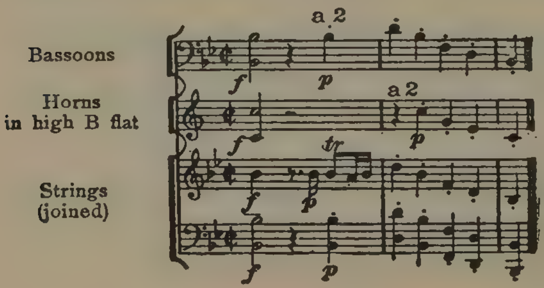
Example 16 SCHUMANN, 1st symphony, 1st movement, bar 1 ff



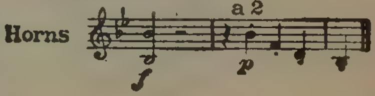
Actual sound:



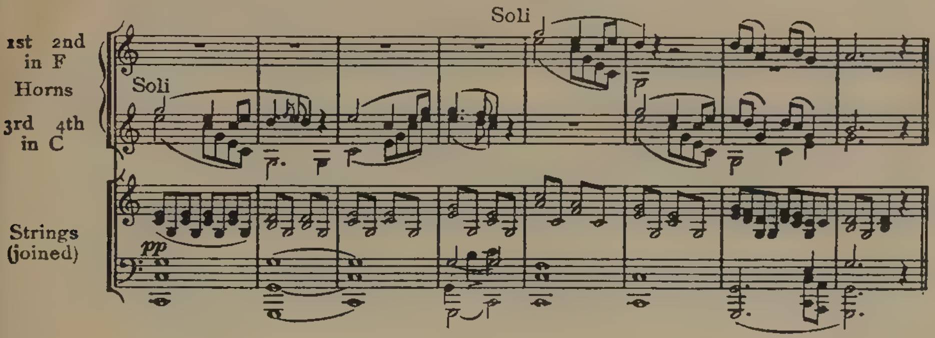
Example 17 MOZART, "Magic Flute", 1st act, Quintet, bar 1



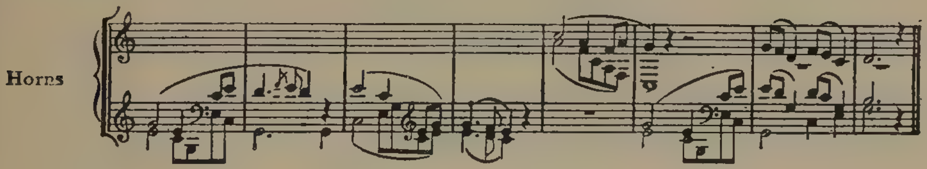
Actual sound of the



Example 18 WEBER, Overture to "Freischütz", bar 10 ff



Actual sound of the



Over and over again objections have been raised against the custom of using the alto and tenor clefs and the whole system of transpositions, and these objections are really justified to a certain extent. Why do these complicated notations exist which render the reading of the score such a very difficult task? Why use the tenor and alto clef when the treble and bass clef will suffice? What is the use of the transpositions—while it is possible to write for all of the respective instruments in C (that is to say a notation which actually coincides with the sound)?

There really are a few scores in existence which heed such objections by reducing the notation to 2 clefs and by eliminating the transpositions altogether (Felix Weingartner's "Normal Score" and the collection "Partiture con notazione a suoni reali" published by Sonzogno).

But the "passive resistance" of musical tradition always paralyses such attempts. Every theatre, every concert organization, every institution which deals with music, owns a library of music which has been collected in the course of decades. The orchestral material which the Vienna State Opera, for instance, uses for its performances of nearly all of the older operas, consists of handwritten parts throughout. The advantage of possessing a more up-to-date, practical and comprehensive material, however, is not sufficient to warrant the enormous costs involved by the rewriting of all these parts, and consequently hardly one operatic manager will consider such an undertaking. The musicians of any orchestra, therefore, must be capable of reading and playing according to the old method; and they are on the other hand so used to it, as not to wish for any new method to be introduced which they would have to study in order to be able to master it.

In writing out the parts of Felix Weingartner's "Normal Score" therefore it is necessary to reinstate the clarinets, English horns, etc. as transposing instruments, a circumstance which brings inevitable mistakes in its wake and which also causes endless misunderstandings at the rehearsals. After all, a musician, once having mastered the difficulties (which are not quite so insurmountable as they appear to the beginner) of transposing and reading the clefs will find less difficulty in reading the score with all its transpositions and clefs lending each instrument its individual notation—than he will encounter in endeavouring to read the "normal" score which is in fact far less lucid. Probably the latter difficulty is merely rooted in custom, but—be that as it may—all reformatory efforts in this direction are doubtless doomed to failure for some time to come. Whether or not a musician agrees with the old way, he will have to accustom himself to a method which has been used for such a long time as to make its abolition a most difficult task.

EMPLOYMENT OF THE INSTRUMENTS IN COMBINATION

Having mastered reading the clefs and transpositions, one has not yet fulfilled all the essentials which are required for reading a score. The most important thing, and at the same time the most difficult task, is the surveying of the whole page, the ability to recognize and to distinguish the essential parts from the less essential ones. And these decisions must be made in one moment, in the fraction of a second, for in the next one there may arise a new situation, which requires the same presence of mind and immediate comprehension. In this respect, this short manual cannot give much more than a few hints, and the statement that a modern score often contains more than the most experienced musician is able to cope with at the moment he hears the music, unless he be thoroughly prepared for it by close study. I mention this as a kind of consolation for the lover of music, in case the difficulties of the problem may make him lose heart.

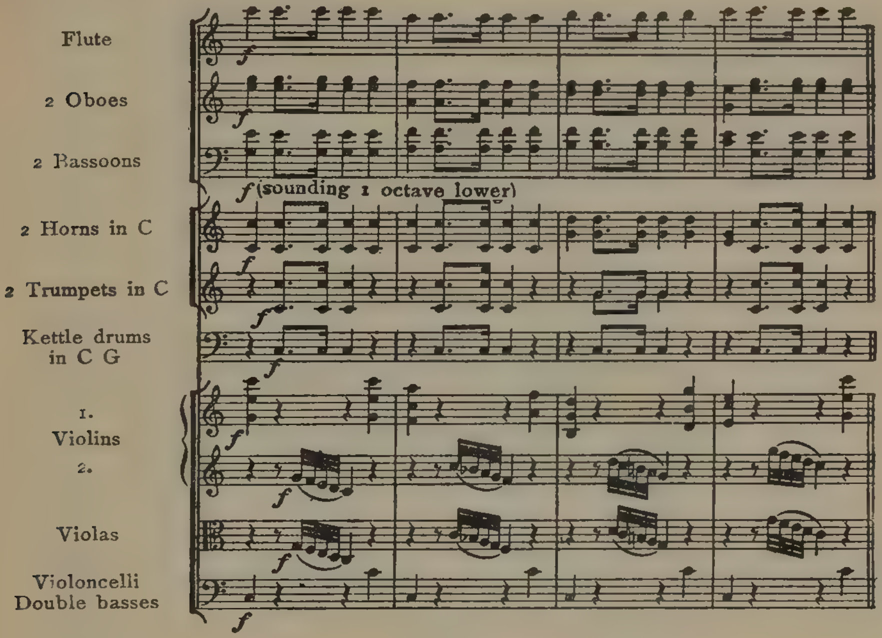
In the older orchestra there are certain traditions, certain typical relationships of the groups one to another. If one happens to know them one will find the reading less difficult. Every period had its special way of treating the orchestra. In Haydn's and Mozart's orchestra (from which our modern orchestra has developed) the strings are absolutely predominant. The woodwind instruments take their share in the thematic structure, yet they are but very seldom used as solo instruments (that is to say, they will not often execute a phrase or a melody by themselves). Generally they join the strings, sometimes in unison, and occasionally in the higher or lower octave. A horn (especially a trumpet) but seldom participates in the leading melody. Horns, trumpets and kettle-drums are obliged to keep to the chief key as they have only a small variety of tones at their disposal; generally they come into action in the most marked forte passages only. In "Tutti" (the entire orchestra) everything of importance as regards harmony and melody is represented in the strings. Woodwinds and brass are employed like those stops of an organ which are utilized to increase the tone-power and sonority of the instrument; frequently they are introduced as accessory parts or for the purpose of achieving rhythmical variety. When brass instruments are competing with strings, the latter preponderate dynamically, especially nowadays when strings are so numerous. Compare for instance example 19 (page 37).

The rhythmic pulsation of the brass and timpani gives the impression of a background only. The first violins with their clear-cut chords, lead the melody, being interrupted by the demisemiquaver passages of the second violins and violas. The first violin is by far the dominating voice of the classical orchestra.

With Beethoven and still more with Schubert and Weber, the woodwind and horns become more and more prominent. Gradually the first flute, oboe and clarinet are more frequently allotted the leading part in the thematic development. They may oppose the violins, or supplement

Example 19

MOZART, "Jupiter" Symphony, 1st movement, bar 9 ff

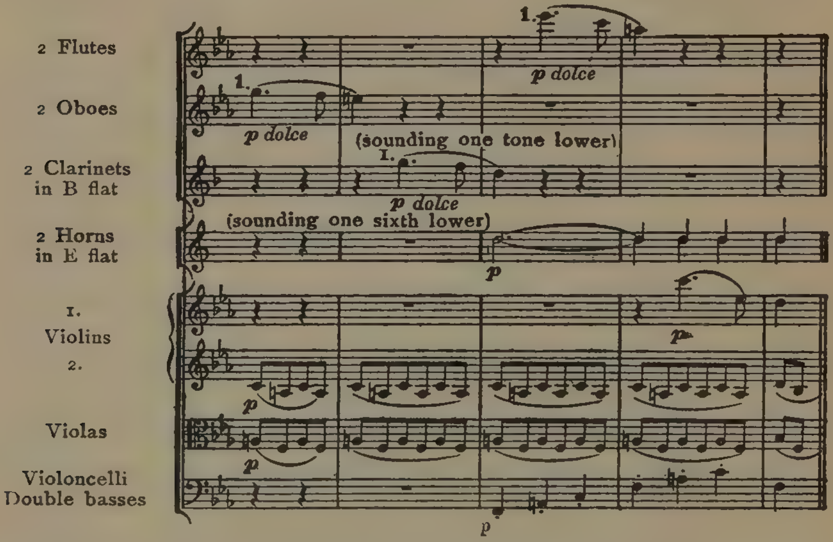


them and exchange phrases with them alternately; thus the various groups of solo instruments are being linked by one continually developed melodic line (see example 20, page 38).

Even the horns which were previously chiefly used in tutti passages, have come to lead a thematic life of their own. The reader therefore must be able to keep all these different instruments in sight; he must learn to distinguish a secondary voice at a glimpse in order to concentrate his attention on the other voices which are more important thematically. Such accessory parts are represented by sustained notes with the brass instruments (see horns in example 20), whereas with the strings they assume the

Example 20

BEETHOVEN, III. Symphony, 1st movement, bar 45 ff

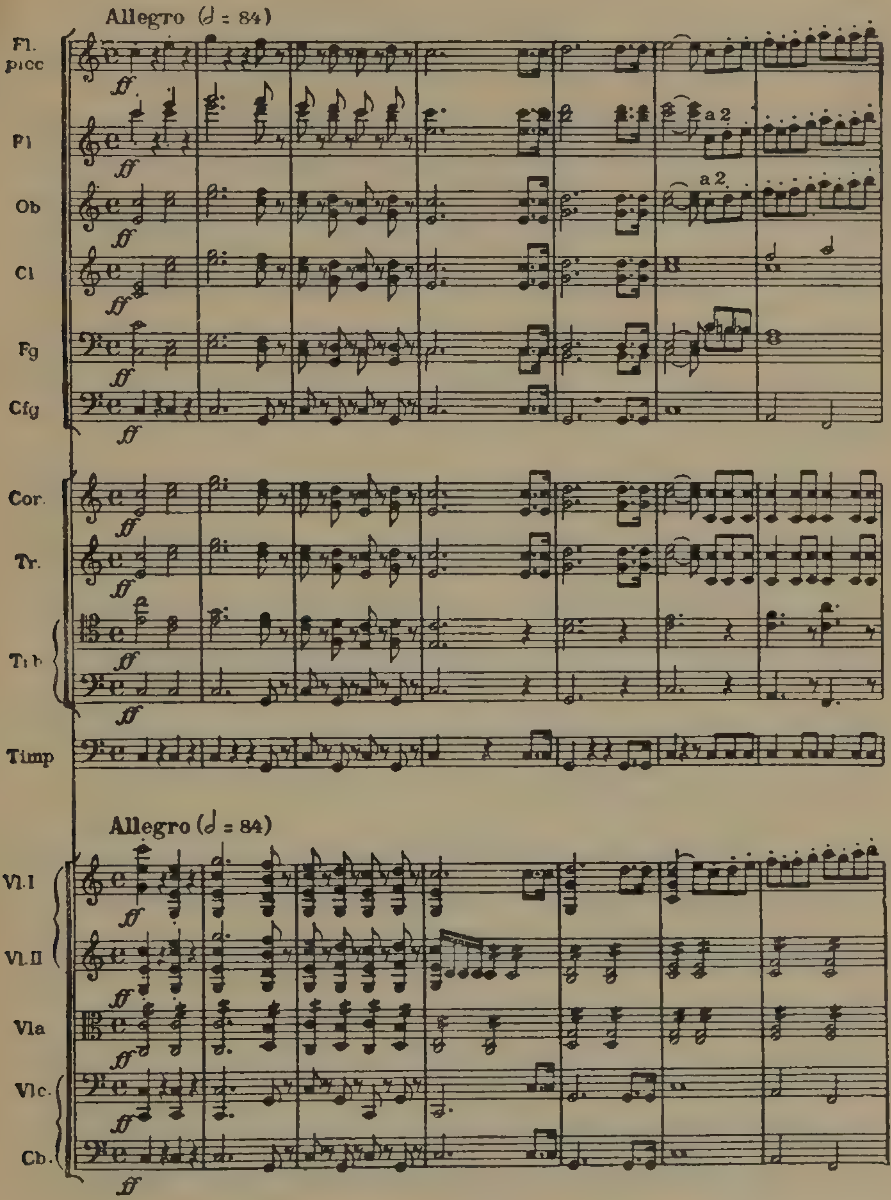


appearance of rhythmical figures of uniform pulsation (second violins and violas in example **20**, 2nd violin in example 7, strings in the examples 8, 18, 22).

The treatment of tutti is very characteristic with Beethoven. The romantics (Schumann, Mendelssohn and even Brahms) on the whole follow the same principle. With them, each of the three groups—woodwinds, brass (when possible) and strings—contains both leading melody (theme and important countertheme—if any) and harmony; thus each group by itself conveys the complete harmonic texture. Notice the tutti passage in example 21.

The continual enlargement of the orchestral body as well as the increasing technical perfection of the various instruments, especially of the brass instruments, has rendered the treatment of the orchestral apparatus a more and more minute task.

Example 21 BEETHOVEN, V. Symphony, last movement, bar 207 ff.



The harmonic structure of the scores, on the other hand, became more polyphonic; middle and secondary voices were gaining importance, and consequently it proved necessary to make the harmonic texture more clear by a more vivid contrast of the orchestral colours. Thus single solo instruments proved to be no longer sufficiently expressive; they were replaced by combinations, such as the characteristic device of doubling those instruments which carried the melody. This method prevails in Wagner's orchestra, but in other modern scores as well. The appended example 22 (Prelude to Wagner's "Parsifal") furnishes an illustration for this method: Flutes, clarinets and strings take the fundamental harmony (A flat major chord). A waving motion is produced by the demisemiquaver figures of the muted strings together with the blurred quavers and triplets of the flutes and clarinets. From this background the sustained melody of the three oboes in unison, joined to the trumpet and to half of the first and second violins, rises with grandiose effect. The trumpet, being the dominating instrument by virtue of its harsh and strong sound, yet appears more mellow and at the same time more expressive and intense against the background of the oboes and muted violins. The bass supports the harmony (moving contrapuntally against the leading melody in strong melodious curves). It is entrusted to the violoncelli and the first horn—again a most sonorous combination, intensified and rounded off, so to speak, by a bassoon which enters in the fourth bar immediately preceding the climax. Notice the ingenious decrescendo effect in the last bar: the closing note of the melody (C) is ultimately held by the oboe and the violins after the trumpet and 2 oboes have stopped one after another.

The technical possibilities of the modern orchestra permit a most wonderful and infinitely varied combination of sound. The reading of a modern score consequently is incomparably more difficult than that of a score of the classical period or of the epoch immediately following it. It is not advisable to attempt such a difficult task before having developed one's faculties of comprehension by studying easier scores. Much application and perseverance, and above all a certain amount of talent is required in order to attain facility in reading a score.

An effective preparatory exercise for the reading of orchestral scores is to reproduce them on the piano, starting on easier string quartets and symphonies (those by Haydn may be suggested for this purpose) and gradually progressing to more difficult works. In such a case it will prove necessary to correct oneself by carefully studying every detail afterwards, as it is inevitable that one will neglect the secondary details when playing from an orchestral score. If one has much opportunity of playing, if one studies the instruments, their tonal colour and technique as well as the secrets of their registers, one makes surprising progress. (It is advisable to study a good manual of instrumentation—perhaps Strauss-Berlioz or Gevaert). Every master—work of the symphonic literature one becomes acquainted with in this way, and which one thoroughly comprehends, thus becomes one's own property, and a treasure indeed.

THE 10 COMMANDMENTS FOR THE READER OF A SCORE

1. The miniature or pocket score is not meant merely to enable one to follow the performance but for the purpose of serious study. The closer one's acquaintance with the score becomes the more readily it will disclose to you its innermost secrets.

2. In the case of hearing a composition for the first time—leave the score at home, as it will only hinder you.

3. Supposing one plays an instrument, one must try to master it—time and talent permitting—as a "musician without an instrument" is the worst invention of our modern times.

4. As soon as one has overcome the technical difficulties of piano playing, one must try to play from orchestral scores. It will give great pleasure.

5. The most important requirement in mastering scores is the "inner ear". One must try to imagine the sound as intensely as possible and then, score in hand, compare it with the original.

6. If you have lost your place in trying to follow the score and cannot find it again—do not look for it but shut the score and listen attentively.

7. Not even the conductor of the orchestra is allowed to make a noise when turning the pages of the score.

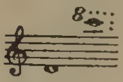
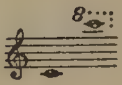
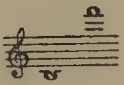
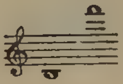
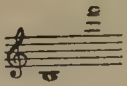
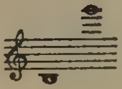
8. To practise conducting an orchestra is a useful and harmless amusement when performed at home—to keep time at the concert by moving your head, feet or any other part of your body is superfluous and, like humming or singing, distracting. The auditor who is really moved, sits still.

9. One should esteem every master and every one of his products. It is not difficult to find fault and it is a sign of being narrow-minded and pedantic.

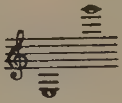
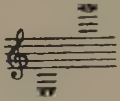
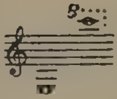
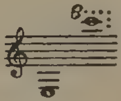
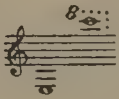
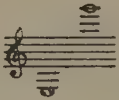
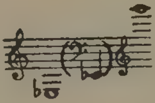
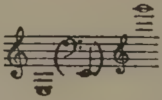
10. To listen to music is like attending a church service. If one does not feel inclined for it—one had better stay at home.

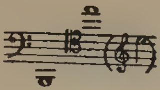
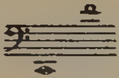
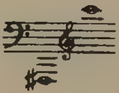
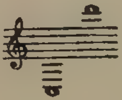
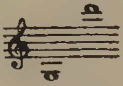
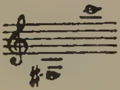
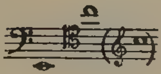
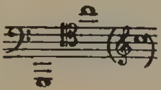
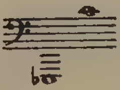
TABLE OF THE INSTRUMENTS

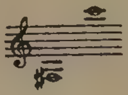
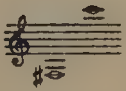
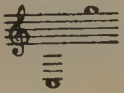
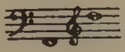
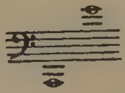
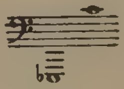
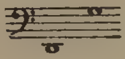
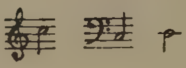
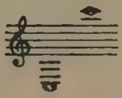
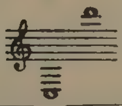
employed in symphony orchestras; their compass as well as their notation.

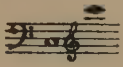
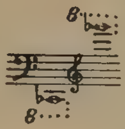
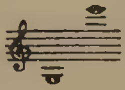
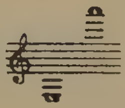
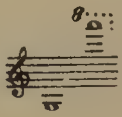
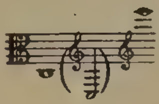
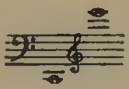
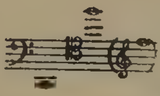
Name of Instrument	Compass in the usual notation (1)	Actual sound	Remarks
Piccolo		one octave higher than noted	family of flutes
Flute		as noted	
Oboe		as noted	family of oboes
Oboe d'amore		a minor third lower than noted	
English horn (Alto oboe)		a fifth lower than noted	
Bass or Barytone oboe		an octave lower than noted	

(1) Only the normal compass is stated above. A good player can extend the compass in the high position.

Name of Instrument	Compass in the usual notation	Actual sound	Remarks
E flat Clarinet		a minor third higher than noted	family of Clarinets
D Clarinet		a whole-tone higher than noted	
C Clarinet		as noted	
B flat Clarinet		a whole-tone lower than noted	
A Clarinet		a minor third lower than noted	
Basset horn (Alto Clarinet)		a fifth lower than noted	
Bass Clarinet in B flat		With treble clef: a major ninth lower, with bass clef: a whole-tone lower than noted	
Bass Clarinet in A		With treble clef: a minor tenth lower, with bass clef: a minor third lower than noted	As it is unusual it is generally replaced by the bass clarinet in B at the performance

Name of Instrument	Compass in the usual notation	Actual sound	Remarks
Bassoon		as noted	family of bassoons
Double bassoon		an octave lower than noted	
Horn in F (valve horn)		With bass clef: a fourth higher, with treble clef: a fifth lower than noted	Are noted in all tunings (also horns in C, B flat a. s. o.). The relation of the written note to the actual sound is identical with that of the prescribed tuning to the note C. The horns are generally transposed lower and the trumpets higher.
Trumpet in C (valve trumpet)		as noted	
Bass trumpet in C		an octave lower than noted	
Cornet à pistons		a whole-tone lower than noted	
Tenor trombone		as noted	family of trombones
Bass trombone		as noted	
Contra bass trombone		as noted	

Name of Instrument	Compass in the usual notation	Actual sound	Remarks
Bugle in B flat		a whole-tone lower than noted	Belonging to the family of sax-horns. Generally used in military bands, but only seldom employed with the symphony orchestra. (Bugle in Mahler's 3rd, Tenorhorn in Mahlers 7th Symphonies.)
Tenor horn in B flat		a major ninth lower than noted	
Tenor tuba		a whole-tone lower than noted	"Wagner Tubas"
Bass Tuba in F		a fifth lower than noted	
C Tuba (generally called Bass Tuba)		as noted	
Contrabass Tuba		as noted	
Kettle drum		as noted	Group of Percussion Instruments
Triangle Side-Drum Castanet Tambourine Cymbals Tenor Drum Gong Big Drum		no certain sound	
Xylophone		an octave higher than noted	
Bells (Glockenspiel)			

Name of Instrument	Compass in the usual notation	Actual sound	Remarks
Celesta		an octave higher than noted	
Harp		as noted	Plucking instruments
Mandoline		as noted	
Guitar (Lute)		an octave lower than noted	
Violin		as noted	Stringed instruments
Viola		as noted	
Violoncello		as noted, except when written in the treble clef, in which case it generally is meant to sound an octave lower	
Double bass		an octave lower than noted	

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